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Fig. 1.

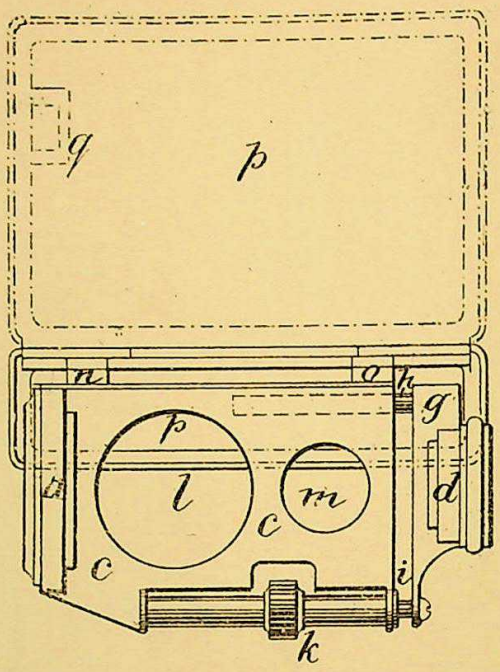
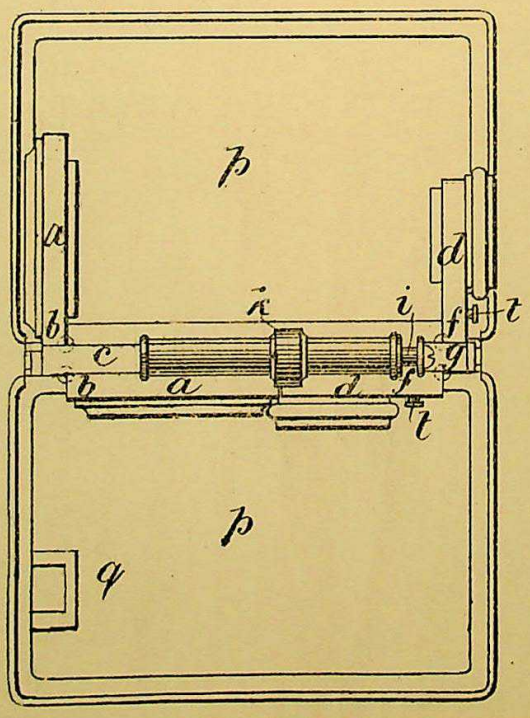


Fig. 2.



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London.. Printed by Darling and
for Her Majesty's Stationery Office

88. OPTICS,
Opera Glasses.

English 22.211 of 1894.

[This Drawing is a reproduction of the Original on a reduced scale.]

(2 SHEETS) SHEET 2.

This invention for improvements in binocular glasses has for its object to provide improved means whereby binocular glasses serving for distant vision can be so folded and arranged as to become very compact and portable and serve also as a reading glass or pocket magnifier when occasion requires.

Fig. 3

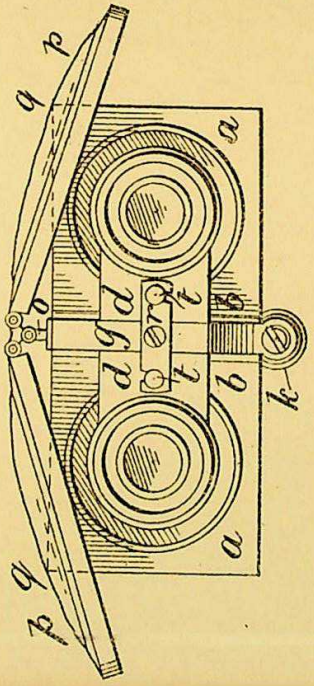
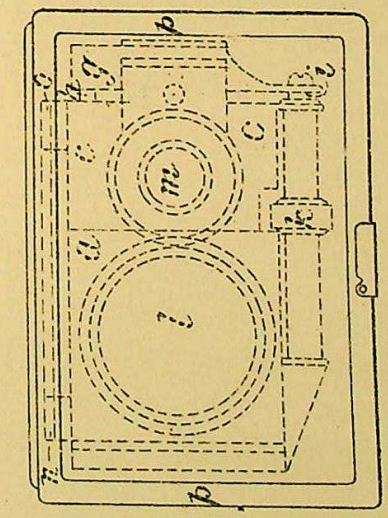


Fig. 4



Malby & Sons, Photo-Litho.

Sons Ld. 1895.

N° 22,211 A.D. 1894

Date of Application, 16th Nov., 1894—Accepted, 29th Dec., 1894

COMPLETE SPECIFICATION.

Improvements in Binocular Glasses.

I WILLIAM HENRY HARVEY, Journalist, of 77 Montholme Road, Wandsworth Common, in the County of Surrey, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement :—

This invention for improvements in binocular glasses has for its object to provide improved means whereby binocular glasses serving for distant vision can be so folded and arranged as to become very compact and portable and serve also as a reading glass or pocket magnifier when occasion requires.

In a binocular glass constructed according to this invention the extensible frame carrying the object and eye glasses is flat and is hinged in the joint of a pocket case so that it can be enclosed completely within the case when it is collapsed, and the object glasses and eye pieces are hinged to the two parts of the extensible frame so that they can be folded down on to the frame when it is to be enclosed in its case, or they can be opened out at right angles for use, the lenses then taking up precisely the same relative positions as in a binocular glass of the ordinary draw-tube pattern and the case serving as a roof or covering to shut off extraneous light rays, thus compensating for the absence of the ordinary draw-tubes.

The extensible part of the frame consists of a crossbar, to which are hinged the arms carrying the eye-pieces, and of two rods or bars projecting at right angles from the ends of the crossbar and adapted to slide in two parallel grooves slots or tubes in the main part of the frame. This slide arrangement enables the necessary focal adjustment to be obtained by moving the eye pieces to the required distance from the object glasses and also secures the requisite rigidity. The slide may be regulated by hand, by rack and pinion, by the screw motion commonly used in opera glasses or by other device.

The frame is so constructed that the two object-glasses close up on opposite sides of a ring or orifice in the frame and come into juxta-position with each other with a clear unimpeded view through, thus forming an effective reading glass or magnifier without the necessity of unscrewing or disconnecting any of the parts concerned. The two eyepieces also close up and fit into a hole or recess in the frame.

In the accompanying sheets of drawings :

Fig. 1 is a side elevation of a binocular glass constructed according to this invention and shows the lenses opened out at right angles to the extensible frame for use as a binocular field or opera glass ; and

Fig. 2 is an inverted plan showing one set of lenses folded in upon the extensible frame and the other set opened out :

Fig. 3 is an end view showing both eye-pieces and both object-glasses opened out for use ; and

Fig. 4 is a plan of the case when closed indicating the position of the instrument folded up within it.

The extensible frame is shown in a partially collapsed position in all the views.

The plates *a* carrying the object-glasses are butt-hinged at *b* to the main frame *c*, and the plates or arms *d* carrying the eye-pieces are butt-hinged at *f* to a sliding extension *g* of the main frame in such a way that when opened out at right angles to the frame the lenses take up precisely the same relative positions as in a binocular glass of the ordinary draw-tube pattern.

[*Price* 8*d*.]

The sliding extension *g* comprises two parallel guide rods or tongues *h i* projecting at right angles and sliding accurately in corresponding holes grooves or slots in the main frame *c*. These slides *h i* enable the eye pieces to be moved to the required focal distance from the object glasses and being spaced widely apart enable great accuracy to be obtained in the motion of the eye pieces with the minimum of risk of lateral play. To one of the slides may be fitted the screw motion *k* commonly used with opera glasses to facilitate adjustment.

In the main frame *c* an orifice or hole *l* allows the two object glasses when closed up upon opposite sides of the frame to come into juxta position with each other, with a clear unimpeded view through, so as to permit of the lenses being used as a reading glass or simple magnifier when required without it being necessary to unscrew or disconnect any of the parts concerned. Another orifice *m* receives the eye pieces when closed up upon opposite sides of the frame thus giving room in the thickness of the main frame for the use of short tubes and stops with the eye pieces without affecting the general compactness of the whole apparatus.

The main frame *c* is hinged at *n o* in the joint of the two-leaved case *p* which when opened out as shown in Fig. 3 serves as a roof or covering for the instrument when in use and by shutting off extraneous light rays compensates for the absence of the ordinary draw tubes.

To hold the object-glasses firmly in position when opened out, suitable catches may if desired be fitted on the inside of the leaves of the case at *q* to engage with the top of the plates *a*; and to hold the eye piece arms firm and rigid, and to prevent them folding back when pressed against the face whilst in use, a double armed catch pivoted at *r* to the cross bar *g* may be used engaging under studs *t* fixed in the eye piece arms *d*.

The main frame *c* may be in one piece or built up of tubes or the like.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. A binocular glass consisting of a pocket case, a flat extensible frame hinged on the inside of the joint of the pocket case, and object-glasses and eye-pieces hinged to the extensible frame substantially as described for the purpose specified.

2. The extensible frame of a folding binocular glass consisting of a flat main frame having guides near its edges, and of a sliding extension having two guide rods working in the said guides of the main frame substantially as described for the purpose specified.

3. A binocular glass consisting of an extensible flat frame provided with openings and of object glasses and eye pieces hinged to the extensible frame so that they can be folded down over the said holes with a clear view through in respect to the object glasses, substantially as described and for the purpose specified.

Dated this 16th day of November 1894.

WHEATLEY & MACKENZIE,
40, Chancery Lane, London, W.C., Agents.

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